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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,107	10/20/2003	Fred G. Benkley III	M1059.70000US01	4260

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EXAMINER

CARTER, AARON W

ART UNIT PAPER NUMBER

2625

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,107 ✓

Applicant(s)

BENKLEY, FRED G.

Examiner

Aaron W. Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-24 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/28/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to papers filed on February 28, 2005.

Response to Amendment

2. In response to applicant's amendment received on February 28, 2005, all requested changes to the claims have been entered. Claims 17-24 have been added. Claim 6 has been cancelled.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 18, 20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-14, 16, 17 and 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,305,017 to Gerpheide.

As to claim 1, Gerpheide discloses a finger sensing apparatus (column 5, lines 44-51) comprising:

Two or more finger detectors spaced apart along an expected direction of movement of a finger (column 4, lines 15-23, column 5, lines 17-28, and Fig. 8a and 8b, wherein a "virtual electrode" corresponds to a finger detector and they are spaced evenly across the pad since the expected direction of movement of the finger could be in any direction on the pad), each of said finger detectors including at least one drive plate and at least one pickup plate (column 8, lines 17-20, wherein in one electrode strip corresponds to a drive plate and the other strip corresponds to a pickup plate), wherein said finger detectors are dimensioned and spaced to sense a bulk of a finger rather than fingerprint features (column 8, lines 29-43, specifically lines 42-43) and wherein an end of a finger passing over each of said finger detectors produces a change in capacitance between respective drive plates and pickup plates (column 4, lines 15-23 and column 8, lines 17-20).

As to claim 2, Gerpheide discloses the finger sensing apparatus as defined in claim 1, wherein the drive plate and the pickup plate of each of said finger detectors are disposed generally laterally with respect to the expected direction of movement of the finger (column 4, lines 15-23 and Fig. 8a and 8b, wherein electrode strips (130) of the virtual electrodes are spaced generally in the expected direction of movement of the finger since the finger could be moved in all direction on the pad (20)).

As to claim 3, Gerpheide discloses the finger sensing apparatus as defined in claim 1, wherein the pickup plates of said finger detectors are commonly connected (column 6, lines 24-26).

As to claim 4, Gerpheide discloses the finger sensing apparatus as defined in claim 1, wherein each of said finger detectors includes first and second pickup plates disposed on opposite sides of the drive plate to form a differential sensor (Fig. 8a and 8b, wherein each virtual electrodes is composed of electrode strips in rows and columns, one of which corresponding to a pickup plate and one corresponding to a drive plate, therefore each drive plate has on either side of it pickup plates).

As to claim 5, Gerpheide discloses the finger sensing apparatus as defined in claim 4, wherein the drive plates of said finger detectors are commonly connected (column 6, lines 24-26).

As to claim 8, Gerpheide discloses the finger sensing apparatus as defined in claim 1, further comprising a substrate, wherein said drive plates and said pickup plates comprise conductive traces on said substrate (column 8, lines 29-43).

As to claim 9, Gerpheide discloses the finger sensing apparatus as defined in claim 1, further comprising a flexible substrate, wherein said drive plates and said pickup plates comprise

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conductive traces on said flexible substrate (column 8, lines 29-43, wherein in MYLAR corresponds to flexible substrate).

As to claim 10, Gerpheide discloses the finger sensing apparatus as defined in claim 8, wherein said substrate comprises a printed circuit board (column 8, lines 29-43).

As to claim 11, Gerpheide discloses the finger sensing apparatus as defined in claim 1, further comprising:

An excitation circuit for energizing the drive plates of said finger detectors with drive signals (column 11, lines 27-30), and

A detection circuit for detecting the drive signals capacitively coupled from the drive plate to the pickup plate of each of said finger detectors to provide sensor signals (column 13, lines 20-28).

As to claim 12, Gerpheide discloses the finger sensing apparatus as defined in claim 11, wherein the drive signals comprise signal bursts (column 11, lines 27-35, wherein an AC provides signal bursts).

As to claim 13, Gerpheide discloses the finger sensing apparatus as defined in claim 12 wherein said signal burst comprise burst on a clock signal (column 11, lines 27-35, wherein the AC is on a clock signal).

As to claim 14, Gerpheide discloses a finger sensing apparatus as defined in claim 12, wherein said detection circuit comprises a synchronous detector (column 11, lines 65-66).

As to claim 16, Gerpheide discloses the finger sensing apparatus as defined in claim 1, wherein the drive plate and the pickup plate of each of said finger detectors are substantially coplanar (Fig. 8a and 8b).

As to claim 17, Gerpheide discloses the finger sensing apparatus defined in claim 11, wherein the drive signals are applied to said finger detectors sequentially (column 13, lines 14-29).

As to claim 20, please refer to the rejection made for claim 1 above.

As to claim 21, please refer to the rejection made for claim 1 above.

As to claim 22, please refer to the rejection made for claim 1 above.

As to claim 23, please refer to the rejection made for claim 8 above.

As to claim 24, please refer to the rejection made for claim 1 above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerpheide in view of USPN 6,785,407 to Tschudi et al. ("Tschudi").

As to claim 7, Gerpheide discloses the finger sensing apparatus as defined in claim 1.

Gerpheide does not disclose expressly wherein the drive plates and pickup plates of said finger detectors are curved to substantially match the curve of a typical finger end.

Tschudi discloses a finger sensing apparatus wherein a drive plate and pickup plate of a finger detector are curved to substantially match the curve of a typical finger end (column 3, lines 49-58).

Gerpheide & Tschudi are combinable because they are from the same art of using capacitance to detect an object.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to curve the finger detector disclosed by Gerpheide.

The suggestion/motivation for doing so would have been to provide more contact surface for the finger (column 3, lines 49-50).

Therefore, it would have been obvious to combine Gerpheide with Tschudi to obtain the invention as specified in claim 7.

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerpheide in view of USPN 6,400,836 to Senior.

As to claim 18, Gerpheide discloses a finger sensor comprising two or more finger detectors spaced apart along an expected direction of movement of a finger (column 4, lines 15-23, column 5, lines 17-28, and Fig. 8a and 8b, wherein a “virtual electrode” corresponds to a finger detector and they are spaced evenly across the pad since the expected direction of movement of the finger could be in any direction on the pad), each of said finger detectors including at least one drive plate and at least one pickup plate (column 8, lines 17-20, wherein in one electrode strip corresponds to a drive plate and the other strip corresponds to a pickup plate), wherein said finger detectors are dimensioned and spaced to sense a bulk of a finger rather than fingerprint features (column 8, lines 29-43, specifically lines 42-43) and wherein an end of a finger passing over each of said finger detectors produces a change in capacitance between respective drive plates and pickup plates (column 4, lines 15-23 and column 8, lines 17-20)..

Gerpheide does not disclose expressly an image sensor comprising an array of sensors for sensing ridge peaks and ridge valleys of a fingerprint.

However, Senior discloses an image sensor comprising an array of sensors for sensing ridge peaks and ridge valleys of a fingerprint and a finger sensor (column 2, lines 5-16).

Gerpheide & Senior are combinable because they are from same art of finger sensing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the finger sensing apparatus which detects the location of finger as disclosed by Gerpheide with the fingerprint authentication of Senior.

The suggestion/motivation for doing so would have been to provide the advantage of requiring only one device with less cost and easier compatibility in space restricted systems (Senior, column 2, lines 1-4).

Therefore, it would have been obvious to combine Gerpheide with Senior to obtain the invention as specified in claim 18.

As to claim 19, please refer to the rejection of claim 8 above.

Allowable Subject Matter

8. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 4,550,221 to Mabusth discloses a finger sensing device.

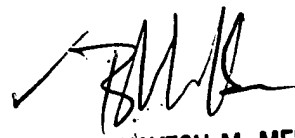
USPN 5,420,936 to Fitzpatrick discloses a touch screen and fingerprint scanner combination.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is (571) 272-7445. The examiner can normally be reached on 8am - 4:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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